

SANIBEL SCREW WORM PROJECT

Summary of Egg Masses Collected

*5 releases Dec 5 - Feb 28
Eggs Dec 11 - Feb 28*

	1st Release				2nd Release				3rd Release				
No. Pupae													
Sterile	7500x0.53-3975				13000x0.28-3640				19500x0.22-4290				
Normal	1500x0.65- 975				2600x0.28- 728				3900x0.23- 897				
Emergence period	12/5 thru 12/7				12/21 thru 12/23				1/2 thru 1/4				Totals
Egg period	12/11 thru 12/26 (16 days)				12/27 thru 1/7 (12 days)				1/8 thru 1/21 (14 days)				each
Masses collected													pen
	R*		N		R		N		R		N		
	S	F	S	F	S	F	S	F	S	F	S	F	
Knip pen	1	4	8	8	10	9	5	8	24	20	2	5	35 33 15 21
Bush pen	0	0	1	2	6	0	0	4	11	16	1	5	17 16 2 11
Eddy pen	1	4	2	23	8	5	4	11	7	8	1	6	16 17 7 40
Totals													
each rel.	2	8	11	33	24	14	9	23	42	44	4	16	68 66 24 72

*R-radioactive, N-non-radioactive, S-sterile, F-fertile.

Infested goats were observed for egg masses November 29th thru December 10th, prior to probable deposition by flies released December 5th thru 7th. Twelve egg masses were collected from December 6th thru 10th with 8 of the 12 being collected at Eddy pen.

Six egg masses oviposited on Christmas Day and 3 others were not checked for radioactivity and are not listed in the tabulation. However, all in question were fertile.

Variation in the lengths of the egg-laying periods was due to a 2 day delay in the emergence of the 2nd release.

A.H. Baumhover 1/22/52.

Sanibel, Florida

February 22, 1952

To: R.C. Bushland, In Charge

From: A.H. Baumhover

Subject: Your Letter 2/18/ 52

In answer to your letter 2/18/52 information on the 3rd and 4th releases is given below. The data on the 5th release may be complete at the writing of the regular weekly report, and if so a summary for that release will be included.

	3rd Release	4th Release
No. Pupae		
sterile	19500 x 22%--4290	10000 x 60%--6000
normal	3900 x 23%--897	2000 x 47%-- 940
Emergence period	1/2 thru 1/4	1/16 thru 1/18
Egg period	1/8 thru 1/21	1/22 thru 2/6
Radioactive masses-		
infertile	42	138
fertile	44	100
Normal masses-		
infertile	4	13
fertile	16	55
Larvae developed but died in shell-		
radioactive	4	7
non-radioactive	--	2

On February 19, 16 Kodas slides directly related to the Sanibel project and 25 of general interest were sent to Kerrville. Slides from the roll of Apasa the processor before the 28th of February. In addition I'm enclosing several slides gleaned from recently processed film.

Data for the 4th release varies from data reported in the February 8th report due to difference in days actually included in totals.

enc.
cc - R.C. Bushland
OAK Ridge Tenn.

A.H. Baumhover

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non-radioactive
radioactive

died in shell-

larvae developed but

sterile

infertile

Normal masses-

fertile

masses-infertile

radioactive

egg period

1/8 thru 1/21

1/8 thru 2/6

emergence
period

1/2 thru 1/4

1/16 thru 1/12

sterile
normal

19500 x 234--4290
3900 x 234--897

10000 x 802--6000
2000 x 475--940

3rd Release

4th Release

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on the 8th release may be complete at the writing
The 3rd and 4th releases is given below. The data
in answer to your letter 2/19/52 information on

Subject: Your letter 2/18/52

From: A.H. Baumhauer

To: H.C. Eushland, in Charge

February 22, 1952

Sanibel, Florida

Weekly progress report, Baumhover, 2/22/52, p.2.

Although 16 days of the probable egg-laying period of the 5th release have elapsed we are continuing to obtain radioactive egg masses. Several days of cool, rainy weather at the beginning of the release period may have slowed development of the flies. However, a summary of the data is given below:

5th Release	
No. Pupae	
sterile	12700 x 71%--9517 (300 sterile and 60 normal held in lab not included)
normal	2540 x 63%--1600
Emergence period	Jan. 31 thru Feb. 2
Egg period	Feb. Jan. 7 thru Jan. Feb. 22
Radioactive masses-	
infertile	103
fertile	38
Normal masses-	
infertile	32
fertile	46
Larvae developed but died in shell-	
radioactive	2
non-radioactive	6

We are continuing to experience some difficulty in monitoring small egg masses at the probable end of the egg-laying period. A higher degree of radioactivity would lessen the chance of failing to recognize egg masses laid by released flies.

Under the supervision of Mr. Eddy 15 release stations were established on Captiva and Sanibel Islands as shown on the enclosed map. The pupae received in 24 cartons were divided to provide 868 X-rayed and 86 normal pupae at each station. A night letter will be sent to Kerrville requesting subsequent shipments to be placed in 30 cartons, 15 X-rayed and 15 normal. The $\frac{1}{2}$ pint cartons were suspended by piercing a length of baling wire thru the center and the flies are emerging thru a slit in the top of the lid. A spot check indicates that the emergence is proceeding satisfactorily.

Aeration holes in this week's shipment were large enough to allow several flies to escape.

cc: E.F. Knipling, G.W. Eddy
R.C. Bushland, Oak Ridge, Tenn.

Alfred H. Baumhover

Although 15 days of the probable egg-laying period of the 5th release have elapsed we are continuing to obtain radioactive egg masses. Several days of cool, rainy weather at the beginning of the release period may have allowed development of the flies. However, a summary of the data is given below:

5th Release

No. Pupae	
sterile	12700 x 718--9517
normal	2540 x 632--1800
Emergency period	Jan. 21 thru Feb. 2
Egg period	Jan. 7 thru Jan. 22
Radioactive	
masses-sterile	103
fertile	32
Normal masses-	
sterile	32
fertile	43
Larvae developed but died in shell-	
radioactive	8
non-radioactive	8

We are continuing to experience some difficulty in monitoring small egg masses at the probable end of the egg-laying period. A higher degree of radioactivity would lessen the chance of failing to recognize egg masses laid by released flies.

Under the supervision of Mr. Bddy 15 release stations were established on Captive and Scudged Islands as shown on the enclosed map. The pupae received in 24 cartons were divided to provide 222 X-rayed and 86 normal pupae at each station. A night letter will be sent to Kirtville requesting subsequent shipments to be placed in 30 cartons, 15 X-rayed and 15 normal. The 2 pint cartons were supported by placing a length of baling wire thru the center and the flies are emerging thru a slit in the top of the lid. A spot check indicates that the emergence is proceeding satisfactorily. Aeration holes in this week's shipment were large enough to allow several flies to escape.

cc: Mr. B. B. Bddy
R.G. Bushland, Oak Ridge, Tenn.

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Egg period	12/11 thru 12/26				12/27 thru 1/7				1/8 thru 1/21				each
	(16 days)				(12 days)				(14 days)				pen
Masses collected													
	R*		N		R		N		R		N		
	S	F	S	F	S	F	S	F	S	F	S	F	
Knip pen	1	4	8	8	10	9	5	8	24	20	2	5	35 33 15 21
Bush pen	0	0	1	2	6	0	0	4	11	16	1	5	17 16 2 11
Eddy pen	<u>1</u>	<u>4</u>	<u>2</u>	<u>23</u>	<u>8</u>	<u>5</u>	<u>4</u>	<u>11</u>	<u>7</u>	<u>8</u>	<u>1</u>	<u>6</u>	<u>16</u> <u>17</u> <u>7</u> <u>40</u>
Totals each rel.	2	8	11	33	24	14	9	23	42	44	4	16	68 66 24 72

*R-radioactive, N-non-radioactive, S-sterile, F-fertile.

Infested goats were observed for egg masses November 29th thru December 10th, prior to probable deposition by flies released December 5th thru 7th. Twelve egg masses were collected from December 6th thru 10th with 8 of the 12 being collected at Eddy pen.

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Variation in the lengths of the egg-laying periods was due to a 2 day delay in the emergence of the 2nd release.

A.H. Baumhover 1/22/52.

Table. - Data on egg masses collected on [March?] Sanibel Island following ^{biweekly} releases of radioactive screwworm flies, December 5 to February 28, 1952.

Number of			Number of egg masses from:			
Flies released		Oviposition	Released flies		Wild flies	
<u>Sterile</u>	<u>Fertile</u>	<u>period</u>	<u>Infertile</u>	<u>Fertile</u>	<u>Sterile</u>	<u>Fertile</u>
3975	975	12/11-12/26	2	78	11	33
3640	730	12/27-1/7	24	14	9	23
4290	900	1/8-1/21	46	44	4	16
6000*	940	1/22-2/6	145	100	15	55
9520	1600	2/7-2/28	114	42	36	69
27,425	5145	Total	331	208	75	196
			1.05	1.86		

Total radioactive egg masses - 539

Total egg masses from wild flies - 271

Ratio radio released, normal to wild flies - 1.0 - 0.5

Ratio sterile, released to normal, released - 5.3 - 1

Ratio sterile to normal (released + wild) - 5.3 - 1.5

Expected sterility of radioactive eggs - 78%

Actual sterility of radioactive egg masses - 61%

Efficiency of releases - $\frac{61}{78} = 78.9\% - 28\%$

* - Treated with 2100 r X-ray; males sterilized, females only partly affected.

50-50

50-50

RO7+R♀RO7+N♀NO7+R♀NO7+N♀

12/31

0 eggs

0 hatch

0 eggs

100% hatch

(1/14)

26 sm, 0 hatch

18 sm - 0 hatch

11 sm - 50% hatch

27 sm, 100% hatch

2115 n. (fills)

1/28

started 10-release

24 sm - 0 hatch

0 eggs

100%

(2/18)

3 sm - 0

23 sm - 0%

4 sm - 100%

5 sm - 100%

4 sm - 0

16 sm - 0%

1 sm - 0

11 sm - 100%

2/25

3 sm - 0

15 sm - 0

1 sm - 0

29 sm - 100

3/3

5 sm - 0

19 sm - 0

1 sm - 0

21 sm - 100

(3/10)

5 sm - 0

15 sm - 1 hatched

3 sm - 1 hatched

20 sm - 80%

RO7+R♀

RO7+N♀

NO7+R♀

0 sm

11 sm - 0 hatch

0 sm

Table. — Data on egg masses collected on Sanibel Island following weekly releases of radioactive screwworm flies; February 18 to March 21, 1952.

Estimated number of		Composition		Number of		Egg masses	
Flies released		Release Date	Oviposition period	Released flies		Wild flies	
<u>Sterile</u>	<u>Fertile</u>			<u>sterile</u>	<u>Fertile</u>	<u>sterile</u>	<u>Fertile</u>
10,270	1080	2/20	2/29-3/6	22	26	10	74
6410	960	2/27	3/7-3/16	20	36	2	13
10,010	1140	3/5	3/17-3/21	5	9	2	12
26,690	3080	- Total -		47	71	14	99

Total radioactive egg masses — 118

Total egg masses from wild flies — 113

Ratio released, normal to wild flies — 1-1

Ratio sterile, released to normal, released 8.7-1

Ratio sterile to normal (released + wild) 8.7-2

Expected sterility of radioactive eggs — 81%

Actual sterility of radioactive egg masses — 40%

Efficiency of releases $\frac{40}{81}$ — 49%

